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EXAMINER

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/051,567	Applicant(s) HASHIMOTO, YOSHIHARU	
	Examiner Srilakshmi K. Kumar	Art Unit 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-56 is/are pending in the application.
- 4a) Of the above claim(s) 8-38 and 43-56 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 39, 40 and 42 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

The following office action is in response to the amendment filed on July 23, 2007. Pending claims are 1-7 and 39-40, 42. Claims 1, 40 and 42 are amended.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1-7 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chee et al (US 5,886,689) in view of Chen et al (US 6,538,647).

As to independent claim 1, Chee et al disclose a method of driving a display in a normal driving mode and a power saving mode (col. 1, lines 23-41), wherein in said normal driving mode, voltages corresponding to image display data are applied to data electrodes of said color display (col. 1, lines 43-59), and wherein in said power saving mode (col. 1, lines 43-65), voltages corresponding to bit signals of said image display data are applied as display data signals to said data electrodes (col. 1, lines 43-65). Chee et al disclose in col. 7, lines 58-col. 8, line 2, 25-48 where in different power saving modes, voltage is reduced to non significant items. Chee et al do not explicitly state most significant bits. Chen et al teach a display data driver where in power saving, the voltages corresponding to the most significant bits are applied as data signals (col. 6, lines 3-23). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the feature of applying the most significant bit data

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signals as taught by Chen et al into Chee et al as it enables power savings with the data driver (Chen et al. col. 2, lines 40-45).

As to dependent claim 2, limitations of claim 1, Chee et al disclose wherein said power saving mode includes an essential information display mode (col. 5, lines 37-65), where a predetermined uniform voltage level, which corresponds to a predetermined color (col. 5, lines 37-65) and which is independent from said image display data, is uniformly applied to all data electrodes on other region than at least a designated region for displaying the essential information (col. 7, lines 9-44).

As to dependent claim 3, limitations of claim 2, and further comprising, Chee et al as modified by Chen et al do not explicitly teach where the display is of normally white type. Chee et al disclose an active or “on” state in the normal mode in col. 1, lines 53-59. It would have been obvious to one of ordinary skill in the art at full power or normal mode, the display would be in an “on” state, of normally white type.

As to dependent claim 4, limitations of claim 2, and further comprising, Chee et al disclose the display is of black type (in col. 1, lines 53-59, wherein the state is a “sleep” state or “off”, thus the display would be of black type).

As to dependent claim 5, limitations of claim 2, and further comprising, Chee et al disclose wherein a uniform scanning signal is simultaneously applied to all scanning electrodes on other region than said at least designated region for displaying the essential information (col. 5, lines 37-48, 66-col. 6, lines 12).

As to dependent claim 6, limitations of claim 1, and further comprising, Chee et al disclose wherein at least a full color display region in said color display is displayed in said

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normal driving mode (col. 1, lines 53-55, the “on” state), and wherein at least a partial color display region in said color liquid crystal display is displayed in said power saving mode (col. 7, lines 9-44).

As to dependent claim 7, limitations of claim 1, and further comprising, Chee et al disclose wherein said power saving mode further inactivates a gray scale voltage generating circuit (col. 7, lines 45-57), a polarity selecting circuit, and an output circuit included in a driver circuit for driving said color display (col. 8, lines 25-48).

As to dependent claim 42, limitations of claim 1, and further comprising, Chen et al disclose wherein said most significant bit signals are a plurality of most significant bits of the image display (col. 6, lines 13-23).

3. Claims 39-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chee et al in view of Chen et al as applied to claim 1 above, and further in view of Kim (US 6,191,770).

As to dependent claim 39, Chee et al as modified by Chen et al do not disclose generating a plurality of scanning signals by a scanning electrode driver circuit; applying sequentially said plurality of scanning signals to a plurality of scanning electrodes in the color display by controlling said scanning electrode circuit; applying sequentially data signals to said plurality of scanning electrodes by controlling a data electrode driving circuit.

Kim discloses in col. 1, lines 14-46, generating a plurality of scanning signals by a scanning electrode driver circuit (col.1, lines 26-27, gate driving circuit), applying sequentially said plurality of scanning signals to a plurality of scanning electrodes in the color display by controlling said scanning electrode circuit (col. 1, lines 26-27, 38-45), applying sequentially data signals to said plurality of data electrodes by controlling a data electrode driving circuit (col. 1,

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lines 23-25). It would have been obvious to one of ordinary skill in the art at the time the invention was made to include the displaying method of the display device as taught by Kim into the power saving display device of Chee et al as modified by Chen et al, as the display method of Kim is a conventional Liquid Crystal Display device (col. 11, lines 14-45 of Kim), and the display of Chee et al is a conventional LCD device. Thus, the display device of Kim et al enables efficient operation.

As to dependent claims 40, Chen et al disclose wherein said voltages corresponding to most significant bit signals of said image display data are selected to values which are high voltages (col. 6, lines 3-23) different from a power voltage for driving the data electrode driving circuit or low voltages different from a grounded voltage and are applied to a corresponding data electrode as said data signals (col. 6, lines 3-23).

Response to Arguments

4. Applicant's arguments filed July 23, 2007 have been fully considered but they are not persuasive.

Applicant argues where the prior art of Chen et al does not teach two modes of operation. While the Examiner agrees with this assertion, Examiner must point out in the rejection above, the prior art of Chee et al teaches power saving and normal modes. The prior art of Chen et al teaches using most significant bits for a low power data driver.

Applicant argues where there is no motivation to combine Chee et al with Chen et al. Examiner, respectfully, disagrees. The combination is proper as combining the data driver using

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most significant bits of Chen et al into Chee et al enable power savings as is disclosed by Chen et al. col. 2, lines 40-45.

Applicant argues that Chen does not teach using most significant bits to save power.

Examiner, respectfully disagrees. Chen et al teach a display data driver where in power saving, the voltages corresponding to the most significant bits are applied as data signals in col. 6, lines 3-23.

Applicant argues where the prior art of Chee et al fail to teach that in the power saving mode, voltages corresponding to most significant bit signals of said image display data are applied as display data signals to the data electrode. Examiner, agrees. As shown by the above rejection, Chee et al fail to teach voltages corresponding to most significant bit signals. In order to remedy this deficiency of Chee et al, the prior art of Chen et al is added to teach the limitation of voltages corresponding to most significant bit signals. This is shown in the rejection above, and further responded to in the above paragraphs.

Applicant argues where the prior art fails to teach an essential information display mode. Examiner, respectfully, disagrees. The prior art of Chee et al teach wherein said power saving mode includes an essential information display mode (col. 5, lines 37-65, four different display modes), where a predetermined uniform voltage level, which corresponds to a predetermined color (col. 5, lines 37-65) and which is independent from said image display data, is uniformly applied to all data electrodes on other region than at least a designated region for displaying the essential information (col. 7, lines 9-44), this is shown by the dimmed level for the displayed images.

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Applicant argues where the examiner misunderstands normally white and normally black type are referred to the state of the display when no voltage is applied. While Chee et al and Chen et al do not explicitly state this feature, it would have been obvious to one of ordinary skill in the art to include this feature of a normally white or normally black. Further, as claimed, the limitation is broadly interpreted to refer to on and off states of the display.

With respect to applicant's arguments where the prior art of Chen does not teach inactivating the polarity selecting circuit, examiner agrees, as the prior art of Chee et al teaches this feature. Specifically, Chee et al disclose wherein said power saving mode further inactivates a gray scale voltage generating circuit (col. 7, lines 45-57), a polarity selecting circuit, and an output circuit included in a driver circuit for driving said color display (col. 8, lines 25-48).

Therefore, the prior art of Chee et al in combination with Chen et al and Kim et al teach the limitations set forth in the instant application. Thus, the rejection is maintained and made FINAL.

Conclusion

5. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Srilakshmi K. Kumar whose telephone number is 571 272 7769.

The examiner can normally be reached on 9:00 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sue Lefkowitz can be reached on 571 272 3638. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Srilakshmi K Kumar
Examiner
Art Unit 2629

SKK
October 10, 2007



SUMATI LEFKOWITZ
SUPERVISORY PATENT EXAMINER